**Course: \_7th Math\_\_\_\_\_ CCSS Standard Number(s): \_\_7.NS.1ab\_\_\_\_\_\_\_\_\_\_\_\_ Day: \_\_1 of 25\_\_\_\_\_\_\_\_\_**

**Unit # and Title: \_\_\_Rational Number Operations: Zero Pairs\_\_\_\_\_\_\_\_\_\_ Block(s)/Period(s): 1 2 3 4 5 6**

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| --- | --- | --- | --- |
| **Unit Essential Question(s):** | **How are integers used to solve problems in the Real-World?** | | |
| **Learning Target(s)**  **“I can statements”** | * **I can demonstrate an understanding of Zero Pairs by making Zero using Chips, Number line, and/or Humps and Holes.** * **I can determine if a numerical expression has a positive or negative meaning.** * **I can write a word problem or phrase that demonstrates a real world situation.** | | |
| **Essential Vocabulary** | **Zero Pairs List of Words for T Chart**  **Opposites Above Sea Level, Below Sea Level**  **Positive numbers Increase, Decrease**  **Negative numbers Profit, Loss**  **Integers Deposit/ Withdrawal**  **Credit/ Debit**  **Gain/ Loss**  **In the Black/ In the Red**  **Altitude/ Descend** | | |
| **Resources and Materials** | **Teacher** | | **Student** |
| * **Class Whiteboard/Markers** * **Index Cards labeled with mathematical opposites** * **T-Chart/ small cards with the same mathematical opposite** | | * **Individual Whiteboards/Markers** * **Integer Chips** * **Math Notebook** * **Math Journals** * **Words with + and - meaning** * **ED Helper Integers Worksheet** * **T-Chart** |
| **8 Mathematical Practices:** | | | |
| X 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  X 3. Construct viable arguments and critique the reasoning of others.  X 4. Model with mathematics. | | X 5. Use appropriate tools strategically.  X 6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning. | |
| **Activating Strategy**  **(Opening Activity)** | Begin the class by talking about opposites and allowing students to give you some examples of opposite. (Be prepared with your own set of ideas in case students can’t think of any.) Display list of the word along with its opposite on the board for students to see.  Help the students to come up with a definition of opposite. Once the class is pleased with their definition, it should be written inside of their math notebook. **5 min.** | | |
| **Cognitive Teaching Strategies**  **Me/We/Few/You**  **(TIP-Teacher input**  **SAP-Student actively participates**  **GP – Guided Practice**  **IP-Independent Practice)** | Next, tell the students that we are going to discuss mathematical expressions or words that have a positive or negative meaning. Place a T chart on the board. Label one side “positive (+)” and the other side “negative (-)”.  Place students in pairs. Provide each pair preprinted T-chart and a group of words cards. Students will work together to place these words under the correct column. They will discuss with each other appropriate placement of the word and why they think it is positive or negative. **5-10 min**  Opened Discussion and have students to place the Word Card on the board under the side they think is appropriate.  Possible Discussion Questions---**Do they agree with each placement?** **Which word if any, should be moved?** **If a student thinks a word should be moved, they must tell why. If a word will not be moved, the student placing the word must share why they placed it where they did. 10 min.**  Allow time for students to complete “Words that have Positive and Negative meanings” and copy correct T-chart in their notebooks. (Notebook)  Tell students, **“We are going to explore what will happen when a positive and negative number are put together.”** Explain ‘Humps and Holes’ to students. **(Draw a straight line on the board, explain that this represents the ground and zero on a number line. Anything above ground is a hump or positive number and anything below ground is a hole or a negative number.)** Students should line up the humps/and holes as they are drawing them and cross out any hump and hole that lines up. Give students several examples and non-examples to practice on their individual whiteboards. (If students have difficulty grasping representational –humps/holes, then can go to concrete by using chips) **10 min**  After students have explored a few minutes, ask the class **“What happens when I have a positive and negative of the same number?”** Tell students that this is what is meant by Zero Pairs. Allow them to come up with a definition of Zero Pairs to be written in their math notebook along with examples and non-examples. **5 min**  **Class Assignment:**  In class, Students will individually complete the “Ed Helper Integers” Worksheet | | |
| **Summarizing Strategy**  **(Closing Activity)** | **Ticket Out:** In their Math Journals, students will write and answer the following; “I can write 2 positive and 2 negative verbal expressions, along with its identified integer. **For example: 3feet below sea level = -3** | | |
| **Assessment/Homework** | **Homework:**   1. Explain how -5 + 5 = 0 (Can use Humps/Holes method) Try the following problems using Humps/Holes:  * -10 + 2 * 5 + (-6)   (2) Write 10 verbal expressions, 5 using a positive direction and 5 negative directional.  **Example: 3 degrees below sea level = -3** | | |
| **Extending/Refining** | **Activity- Zero Pairs card game (2 to 3 players)**  **Objective: To be the person at the end of the game with the highest score. A person’s score is created by making Zero pairs. Each Zero pair that a person is able to create is worth 10 points. For each card that is left in a person’s hand at the end of the game, the player will subtract 5 points from their total score.**  Using a standard deck of cards, remove the Jokers. Aces will represent the number 11. Kings, Queens, and Jacks will represent the number 10.  Have the student to separate the red cards from the black cards. The Red cards are to be shuffled and placed in a center stack and will represent negative numbers. The Black Cards will be shuffled and each person dealt a card (2 players, 13 cards- 3 players, 8 cards). Any black cards left over will be put to the side.  Players will take turns plucking red (negative) cards from the deck. Player 1 will pluck a red card from the deck. They can use any number of their black cards to create a zero pair for the red card. If they can’t use the card, the next player can elect to use the card or pluck. If they use the card, they can not pluck. If the card is not used, it is turned over and laid on the board and is now “Dead” and can no longer be placed into play. Players can not go back into the “Dead” stack to pull a card. | | |

Words with

Positive or Negative Meaning

**Directions:**

Place a positive sign (+) in the space if the word has a positive meaning. Place a negative sign (-) in the space if the word has a negative meaning.

Below Zero\_\_\_\_ Deposit\_\_\_\_\_ Withdrawal\_\_\_\_

Altitude\_\_\_\_\_ Loss\_\_\_\_\_ Gain\_\_\_\_\_

Above Sea Level\_\_\_\_\_ Below Sea Level\_\_\_\_\_\_

Profit\_\_\_\_ Short\_\_\_\_\_\_ Dropped\_\_\_\_\_\_

Right\_\_\_\_\_\_\_ UP\_\_\_\_\_\_\_\_ Bonus\_\_\_\_\_\_\_

Increase\_\_\_\_\_\_\_ Decrease\_\_\_\_\_\_\_ Left\_\_\_\_\_

Minus\_\_\_\_\_\_ Raise\_\_\_\_\_\_\_ Pay cut\_\_\_\_\_

Above Zero\_\_\_\_\_ In the Red \_\_\_\_ Descend \_\_\_\_

In the Black \_\_\_\_\_\_ Down\_\_\_\_\_ Plus \_\_\_\_\_\_

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| Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  | http://www.edhelperclipart.com/clipart/edhelp1.gif | Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (Answer ID # 0331012) |

**Integers**

**Write an integer to represent each description.**

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| |  |  | | --- | --- | | 1. | 16 units to the left of -14 on a number line. | | |  |  | | --- | --- | | 2. | A pay cut of $3,500. | |
| |  |  | | --- | --- | | 3. | A loss of $35,047 on an investment. | | |  |  | | --- | --- | | 4. | The stock market went up 118 points today. | |
| |  |  | | --- | --- | | 5. | 14 units to the right of -7 on a number line. | | |  |  | | --- | --- | | 6. | One hundred ninety-five feet below sea level. | |
| |  |  | | --- | --- | | 7. | A gain of six pounds. | | |  |  | | --- | --- | | 8. | 12 units to the right on a number line. | |
| |  |  | | --- | --- | | 9. | 19 units to the right of 3 on a number line. | | |  |  | | --- | --- | | 10. | The opposite of 198. | |
| |  |  | | --- | --- | | 11. | The stock market went down 171 points today. | | |  |  | | --- | --- | | 12. | 4 units to the left on a number line. | |
| |  |  | | --- | --- | | 13. | 15 units to the left of -15 on a number line. | | |  |  | | --- | --- | | 14. | The football player had a 13 yard gain on the play. | |
| |  |  | | --- | --- | | 15. | 9http://www.edhelperclipart.com/clipart/degrees.jpg above zero. | | |  |  | | --- | --- | | 16. | A raise of $4,500. | |
| |  |  | | --- | --- | | 17. | A profit of $39,307 on an investment. | | |  |  | | --- | --- | | 18. | Deposit $1,761 into a bank account. | |
| |  |  | | --- | --- | | 19. | 19http://www.edhelperclipart.com/clipart/degrees.jpg below zero. | | |  |  | | --- | --- | | 20. | An altitude of 7800 feet. | |
| |  |  | | --- | --- | | 21. | The football player had a 13 yard loss on the play. | | |  |  | | --- | --- | | 22. | 11 units to the left of -19 on a number line. | |
| |  |  | | --- | --- | | 23. | A profit of $39,238 on an investment. | | |  |  | | --- | --- | | 24. | A pay cut of $4,000. | |
| |  |  | | --- | --- | | 25. | 10 units to the right on a number line. | | |  |  | | --- | --- | | 26. | The opposite of 213. | |
| |  |  | | --- | --- | | 27. | One hundred five feet below sea level. | | |  |  | | --- | --- | | 28. | The football player had a 6 yard gain on the play. | |
| |  |  | | --- | --- | | 29. | Withdraw $846 from an ATM machine. | | |  |  | | --- | --- | | 30. | The stock market went up 124 points today. | |
| |  |  | | --- | --- | | 31. | 57http://www.edhelperclipart.com/clipart/degrees.jpg above zero. | | |  |  | | --- | --- | | 32. | An altitude of 1200 feet. | |
| |  |  | | --- | --- | | 33. | A loss of eighteen pounds. | | |  |  | | --- | --- | | 34. | Fifty-eight feet above sea level. | |
| |  |  | | --- | --- | | 35. | A raise of $7,500. | | |  |  | | --- | --- | | 36. | The football player had a 19 yard loss on the play. | |
| |  |  | | --- | --- | | 37. | A loss of $44,422 on an investment. | | |  |  | | --- | --- | | 38. | 2 units to the right of -8 on a number line. | |
| |  |  | | --- | --- | | 39. | The stock market went down 261 points today. | | |  |  | | --- | --- | | 40. | Deposit $60 into a bank account. | |

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| **Answer Key 0331012** |

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1. | |  |  |  | | --- | --- | --- | | 16 units to the left of -14 on a number line. |  | **-30** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 2. | |  |  |  | | --- | --- | --- | | A pay cut of $3,500. |  | **-3500** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 3. | |  |  |  | | --- | --- | --- | | A loss of $35,047 on an investment. |  | **-35047** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 4. | |  |  |  | | --- | --- | --- | | The stock market went up 118 points today. |  | **118** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 5. | |  |  |  | | --- | --- | --- | | 14 units to the right of -7 on a number line. |  | **7** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 6. | |  |  |  | | --- | --- | --- | | One hundred ninety-five feet below sea level. |  | **-195** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 7. | |  |  |  | | --- | --- | --- | | A gain of six pounds. |  | **6** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 8. | |  |  |  | | --- | --- | --- | | 12 units to the right on a number line. |  | **12** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 9. | |  |  |  | | --- | --- | --- | | 19 units to the right of 3 on a number line. |  | **22** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 10. | |  |  |  | | --- | --- | --- | | The opposite of 198. |  | **-198** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 11. | |  |  |  | | --- | --- | --- | | The stock market went down 171 points today. |  | **-171** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 12. | |  |  |  | | --- | --- | --- | | 4 units to the left on a number line. |  | **-4** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 13. | |  |  |  | | --- | --- | --- | | 15 units to the left of -15 on a number line. |  | **-30** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 14. | |  |  |  | | --- | --- | --- | | The football player had a 13 yard gain on the play. |  | **13** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 15. | |  |  |  | | --- | --- | --- | | 9http://www.edhelperclipart.com/clipart/degrees.jpg above zero. |  | **9** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 16. | |  |  |  | | --- | --- | --- | | A raise of $4,500. |  | **4500** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 17. | |  |  |  | | --- | --- | --- | | A profit of $39,307 on an investment. |  | **39307** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 18. | |  |  |  | | --- | --- | --- | | Deposit $1,761 into a bank account. |  | **1761** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 19. | |  |  |  | | --- | --- | --- | | 19http://www.edhelperclipart.com/clipart/degrees.jpg below zero. |  | **-19** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 20. | |  |  |  | | --- | --- | --- | | An altitude of 7800 feet. |  | **7800** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 21. | |  |  |  | | --- | --- | --- | | The football player had a 13 yard loss on the play. |  | **-13** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 22. | |  |  |  | | --- | --- | --- | | 11 units to the left of -19 on a number line. |  | **-30** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 23. | |  |  |  | | --- | --- | --- | | A profit of $39,238 on an investment. |  | **39238** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 24. | |  |  |  | | --- | --- | --- | | A pay cut of $4,000. |  | **-4000** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 25. | |  |  |  | | --- | --- | --- | | 10 units to the right on a number line. |  | **10** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 26. | |  |  |  | | --- | --- | --- | | The opposite of 213. |  | **-213** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 27. | |  |  |  | | --- | --- | --- | | One hundred five feet below sea level. |  | **-105** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 28. | |  |  |  | | --- | --- | --- | | The football player had a 6 yard gain on the play. |  | **6** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 29. | |  |  |  | | --- | --- | --- | | Withdraw $846 from an ATM machine. |  | **-846** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 30. | |  |  |  | | --- | --- | --- | | The stock market went up 124 points today. |  | **124** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 31. | |  |  |  | | --- | --- | --- | | 57http://www.edhelperclipart.com/clipart/degrees.jpg above zero. |  | **57** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 32. | |  |  |  | | --- | --- | --- | | An altitude of 1200 feet. |  | **1200** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 33. | |  |  |  | | --- | --- | --- | | A loss of eighteen pounds. |  | **-18** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 34. | |  |  |  | | --- | --- | --- | | Fifty-eight feet above sea level. |  | **58** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 35. | |  |  |  | | --- | --- | --- | | A raise of $7,500. |  | **7500** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 36. | |  |  |  | | --- | --- | --- | | The football player had a 19 yard loss on the play. |  | **-19** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 37. | |  |  |  | | --- | --- | --- | | A loss of $44,422 on an investment. |  | **-44422** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 38. | |  |  |  | | --- | --- | --- | | 2 units to the right of -8 on a number line. |  | **-6** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 39. | |  |  |  | | --- | --- | --- | | The stock market went down 261 points today. |  | **-261** | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | 40. | |  |  |  | | --- | --- | --- | | Deposit $60 into a bank account. |  | **60** | | |

**T- CHART**

**Positive (+) Negative (-)**

**Words for use with T-Chart**

|  |  |  |
| --- | --- | --- |
| Gain | Above Sea Level | Short |
| Below Zero | Dropped | Decrease |
| Loss | Deposit | Raise |
| Bonus | Below Sea Level | Profit |
| Minus | In the Red | Pay cut |
| UP | Right | Altitude |
| In the Black | Above Zero | Descend |
| Left | Plus | Down |
| Increase | In the Red | Withdrawal |

**T- CHART (Answer Key)**

**Positive (+) Negative (-)**

Deposit Below Zero

Altitude Withdrawal

Gain Loss

Above Sea Level Below Sea Level

Profit Short

Right Dropped

UP Decrease

Bonus Left

Increase Minus

Raise Pay cut

Above Zero In the Red

In the Black Descend

Plus Down